

# Notice of Allowability

Application No.

09/871,115

Examiner

Tanh Q. Nguyen

Applicant(s)

APEL ET AL.

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to communications filed September 17, 2007.
2. ☒ The allowed claim(s) is/are 12-30,56-71,80,88-110.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 10/15/07
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

TANH Q NGUYEN  
PRIMARY EXAMINER  
TECHNOLOGY CENTER 2100

*Tanh Q. Nguyen*  
November 20, 2007

### EXAMINER'S AMENDMENT

1. *An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.*

*Authorization for this examiner's amendment was given in a telephone interview with the attorney for applicant, Oliver T. Ong (Reg. No. 58,456) on November 20, 2007.*

***The application has been amended as follows:***

Claim 17, line 3: replaced "the interface" with --the first interface--

Claim 17, line 5: replaced "the interface" with --the first interface--

Cancelled claims 37-54

80. (Currently Amended) An apparatus for use in a process control system, the process control system including a process controller adapted to produce a control message for receipt by a field device, the process controller and ~~a plurality of devices~~ in communication with a plurality of devices using a bus, the apparatus being ~~one of~~ an input/output (I/O) device ~~and a field device~~ and comprising:

a first interface directly coupled to the bus for communicatively linking the apparatus with the process controller via the bus, the first interface adapted to receive the control message from the process controller for a the field device via the bus or to provide one or more field device messages from the field device to the process controller, the field device being coupled to the apparatus through a second interface

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apart from the bus, wherein the field device controls a physical process control parameter or measures a physical process control parameter; and

a processor coupled with the first interface for controlling operation of the apparatus including performing fault detection for the apparatus;

wherein the processor, upon detection of a potential apparatus fault, severs the communication link provided by the first interface with the bus.

Cancelled claim 87

Claim 88, line 1: replaced "claim 87" with --claim 80--

Claim 91, lines 3-4: deleted "and adapted to produce a control message for receipt by a field device"

Claim 98, line 5: replaced "the interface" with --the first interface--

103. (Currently Amended) The system of claim 91 wherein the fault detection of ~~one of the device processors of the plurality of I/O devices~~ processor includes the device processor of ~~the one of the plurality of I/O devices~~ attempting to affect the bus using the first interface of ~~the one of the device processors~~, wherein the device processor of ~~the one of the plurality of I/O devices~~ detects the potential device fault by an inability of the device processor of ~~the one of the I/O devices~~ to affect the bus.

104. (Currently Amended) The system of claim 103 wherein the device processor ~~for one of the plurality of I/O devices~~ attempting to affect the bus includes the

device processor ~~for the one of the plurality of I/O devices~~ attempting to change the state of the bus.

105. (Currently Amended) The system of claim 104 wherein the device processor ~~for one of the plurality of I/O devices~~ attempting to change the state of the bus includes the device processor ~~for the one of the plurality of I/O devices~~ forcing a state on the bus.

106. (Currently Amended) The system of claim 105 wherein the device processor ~~for one of the plurality of I/O devices~~ forcing the state of the bus includes the device processor ~~for the one of the plurality of I/O devices~~ transmitting one of a digital high value and a digital low value on the bus.

107. (Currently Amended) The system of claim 105 further comprising the device processor ~~for one of the plurality of I/O devices~~ reading the bus after attempting to affect the bus, wherein the device processor ~~for the one of the plurality of I/O devices~~ determines the inability to affect the bus using the reading of the bus.

108. (Currently Amended) The system of claim 91 further comprising the device processor ~~for one of the plurality of I/O devices~~ performing further fault detection upon severing of the communication link, wherein when the device processor ~~for the one of the plurality of I/O devices~~ detects no device fault from the further fault detection, the device processor ~~for the one of the plurality of I/O devices~~ reestablishes the communication link with the bus.

109. (Currently Amended) The system of claim 91 wherein the process control system operates in macrocycles, the macrocycles including at least one synchronous time slot and at least one asynchronous time slot corresponding to the synchronous time slot, and further comprising ~~one of the plurality of I/O devices~~ the I/O device being assigned to one of the synchronous time slots, where the device processor ~~for the one of the plurality of I/O devices~~ performs fault detection during the asynchronous time slot following the corresponding synchronous time slot.

110. (Currently Amended) The system of claim 91 wherein the device processor ~~of one of the plurality of I/O devices~~ performs the fault detection when the ~~one I/O device of the plurality of I/O devices~~ is not transmitting I/O device information on the bus.

### **Conclusion**

2. *Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanh Q. Nguyen whose telephone number is 571-272-4154. The examiner can normally be reached on M-F 9:30AM-7:00PM.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on 571-272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.*

*Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for*

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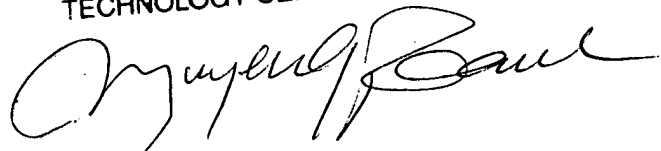
*published applications may be obtained from either Private PAIR or Public PAIR.*

*Status information for unpublished applications is available through Private PAIR only.*

*For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic*

*Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.*

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*November 20, 2007*

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November 20, 2007